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4 STEPS  
TO  
HIGHER  
SOYBEAN  
PROFITS

EXTENSION SERVICE • U.S. DEPARTMENT OF AGRICULTURE  
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PRODUCE  
what the market  
wants

1.



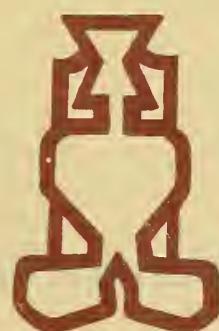
HARVEST  
high quality  
soybeans

2.



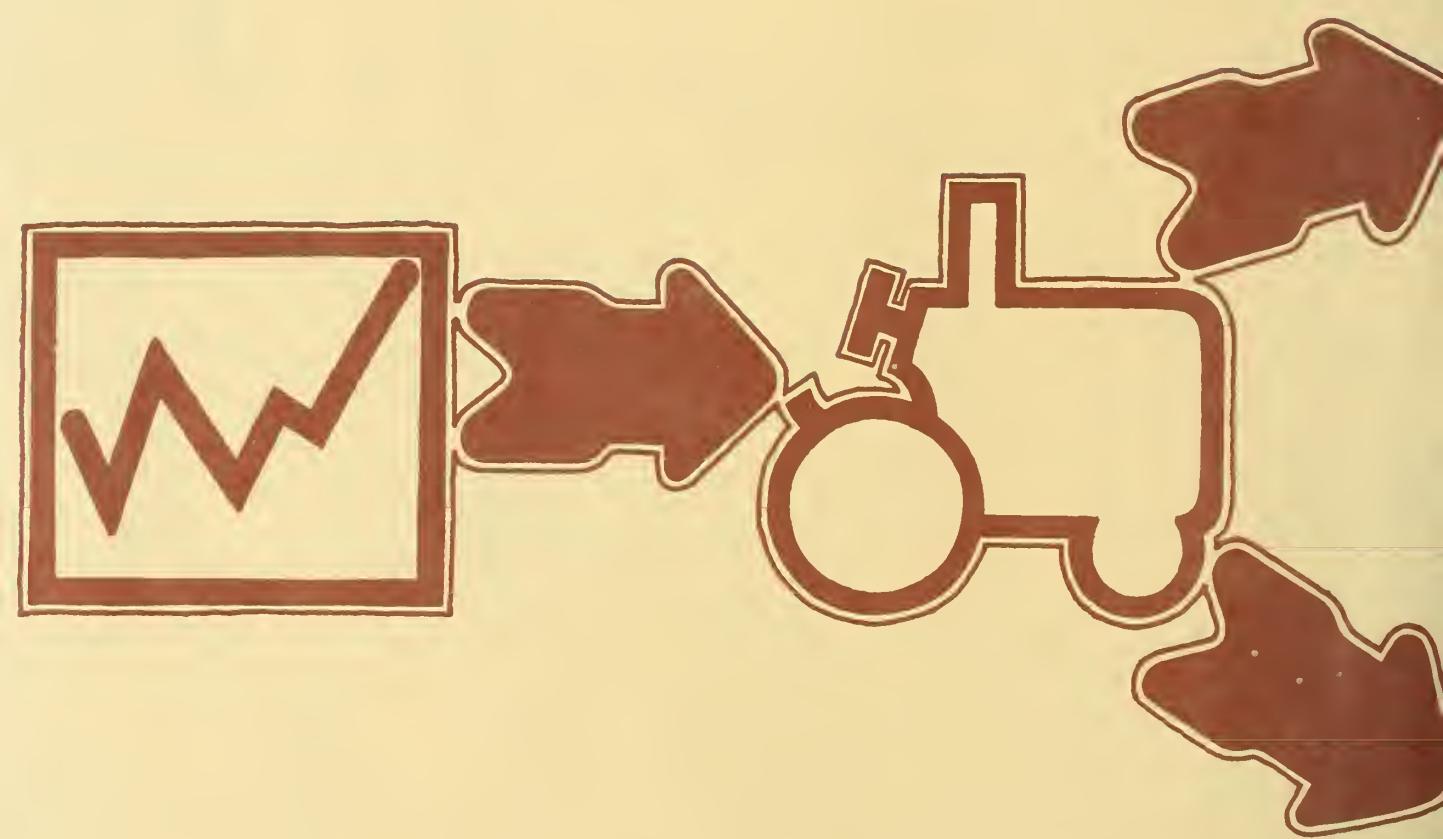
MARKET  
wisely

3.



RECOGNIZE  
grading  
factors

4.





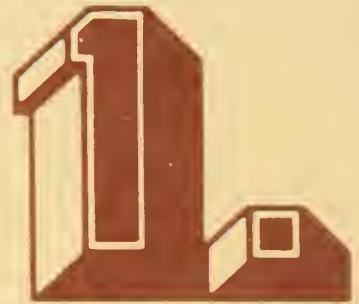
## FOUR STEPS TO HIGHER SOYBEAN PROFITS

Joseph R. Corley, Marketing Economist

To sell your soybeans for top dollars, you should know what your customer wants and is willing to pay. You also should know the different factors that can affect the price you will get.

- Do you use the tools available to you for marketing your soybeans?
- Do you watch for moisture or foreign material?
- Do you consider how your soybeans will be graded?

Here are some ideas on buyer needs and the factors that influence the price you will get when you sell your soybeans.



## **PRODUCE What the Market Wants:**

It is important to plan a marketing program at the same time you plan your production program. Producing what the market wants is more likely to bring in top soybean dollars.

Plan your marketing program even before you buy your seed. Proper seed, tillage, weed control, and moisture control are important in obtaining high quality soybeans. Remember, each management practice will affect the quality of beans produced, and ultimately, the price you get.



## **HARVEST High Quality Soybeans:**

Top dollars also depend on harvesting the highest quality soybeans possible. Try these pointers at harvest time:

- Harvest when all pods are ripe, beans are dry—approximately 12-15 percent moisture (13 percent is a good target).
- Avoid splitting beans when harvesting. Slow the speed of the machinery down by trial until split beans are a minimum. Prevent beans from reentering the cylinder through the return.
- Remove splits, insects, green pods, and stems by cleaning.
- Always store in a cool, dry place.



## **MARKET Wisely:**

You need to plan your marketing program every year. Normally marketing conditions change each year, so you should alter your plans to combine alternatives that will maximize profits. Alternatives available to you include:

- Sell at harvest at whatever price is offered. This requires no plan, just a wait-and-see attitude.
- Store, either on-farm or in commercial facilities, or both and sell later. This offers flexibility. It also gives the advantage of using the loan support program with these options:
  - Loan matures and Government takes soybeans.
  - Redeem and sell. This is often a profitable alternative. Many farmers choose this over hedging.
  - Reseal in approved on-farm and commercial storage. This option also offers opportunity for you to redeem and sell at a better price.
  - Exercise the loan option and use another market alternative, i.e., forward contracting.
- Book or contract a portion of the entire crop. This alternative offers opportunity to farmers who do not have on-farm storage or access to commercial storage.
- Hedge, using a futures contract to avoid price risks. There are three ways to use the futures contract:
  - Fix the price of a growing crop any time before harvest.
  - Fix the price of grain in storage for deferred delivery.
  - Speculate without storing.

A combination of these alternatives may be more profitable.

Consider these tools when you are planning your marketing program:

- Commercial storage facilities.
- On-farm storage facilities.
- Loan support program.
- Present and future price expectations.

Observe the market information factors during the marketing year, to help you choose alternatives:

- Usage figures—including crush, export, seed.
- Competition of other oil crops such as sunflower.
- Competition of other meals such as fish meal.
- Weather conditions.
- Commodity Credit Corporation sales program.
- Crop production reports or planting intention reports.
- World conditions.
- Grain Stocks reports.

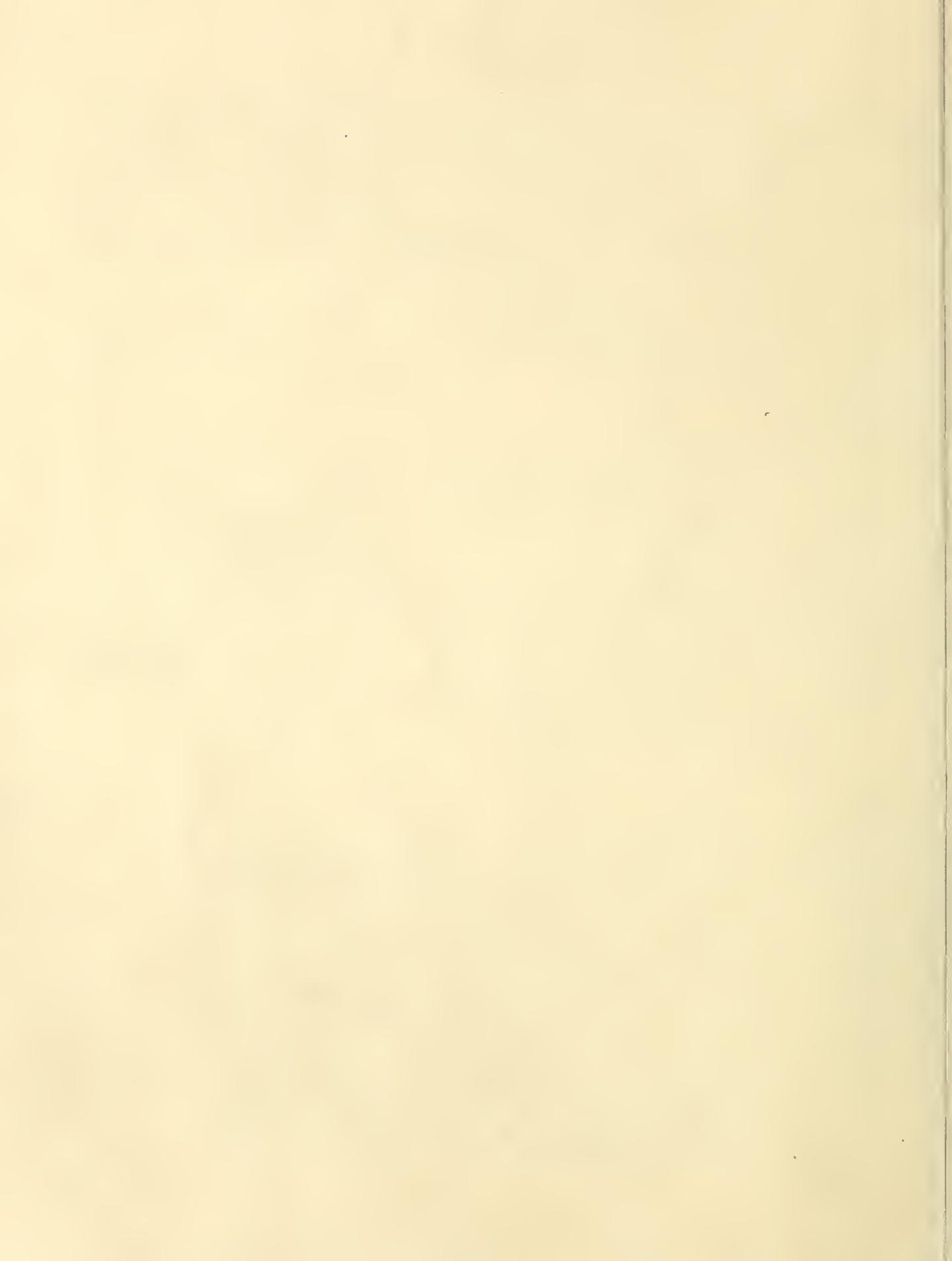
Any one, or a combination of these factors, can cause the maximum price change permitted during a single day's trading at the grain exchanges.

A limit permitting change above or below the previous day's closing price for futures trading in soybeans prohibits drastic fluctuations; no limit applies to the spot month's price.

### **SOYBEANS IN GOVERNMENT LOANS:**

The 1973 national average price support loan through Commodity Credit Corporation was \$2.25 per bushel, based on No. 1 grade, and adjusted for location, premiums, and discounts.

If you want to put your soybeans under Government loan, they must grade yellow or green No. 1; contain 12.8 to 13.0 percent moisture; grade not lower than No. 2 on the factors of test weight, splits, and heat damage; and grade No. 1 on all other factors. Premiums and discounts allowed depend on percentages of moisture, foreign material damage, and splits. (See Table 1, Page 8)



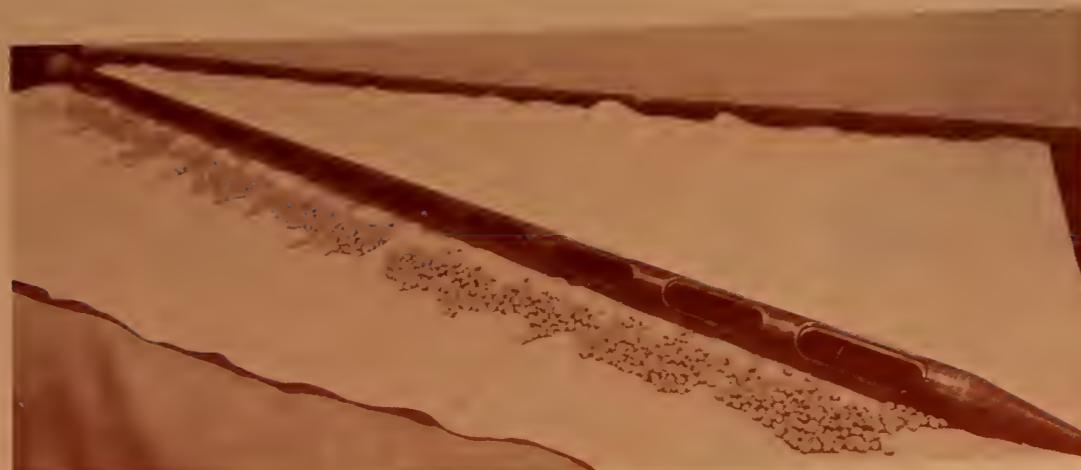


Fig. 1—Grain probe.

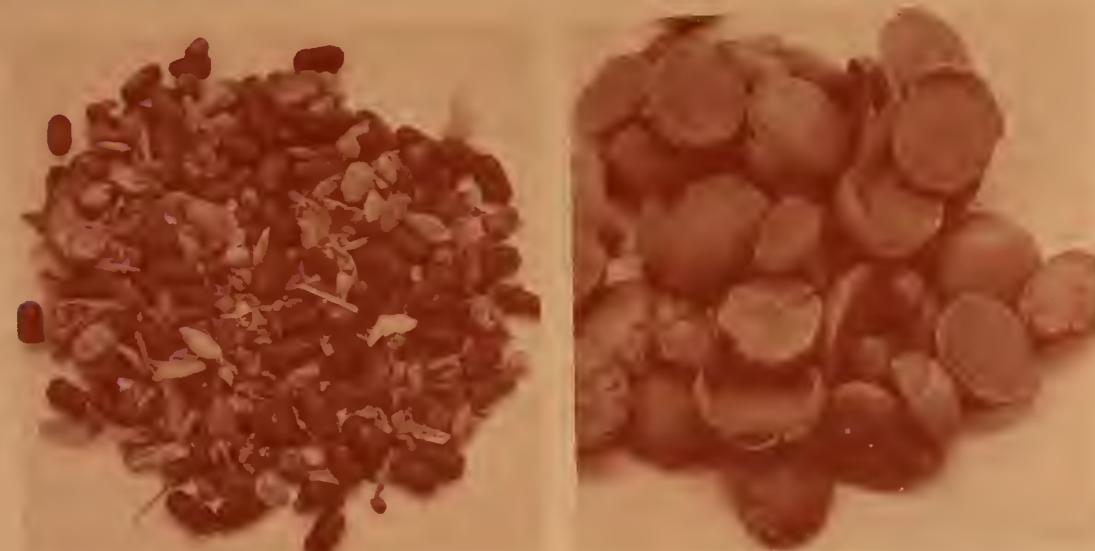


Fig. 5—Foreign material from soybean sample.

Fig. 6—Split soybeans.

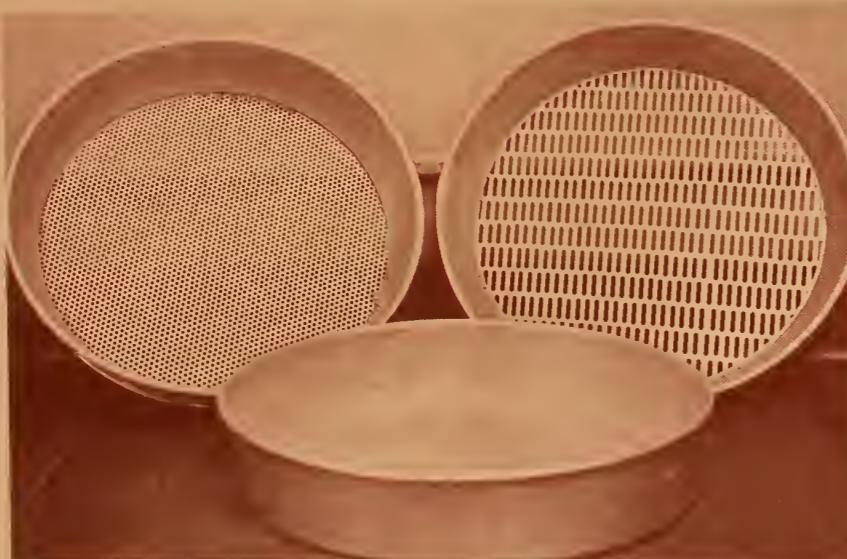


Fig. 7—Hand sieves.



Fig. 2—Boerner sampler.



Fig. 8—Good soybeans (left) compared to damaged soybeans (right).

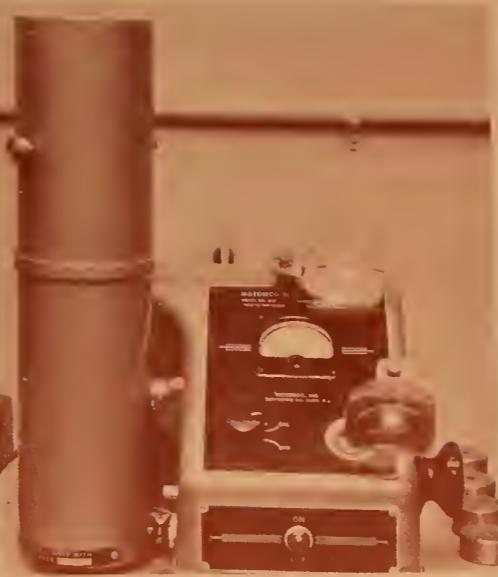


Fig. 3—Moisture machine.



Fig. 4—Test-weight-per-bushel apparatus.

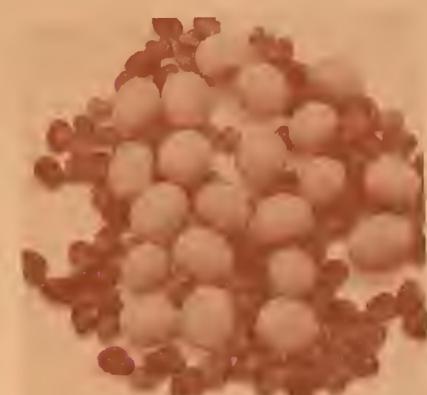
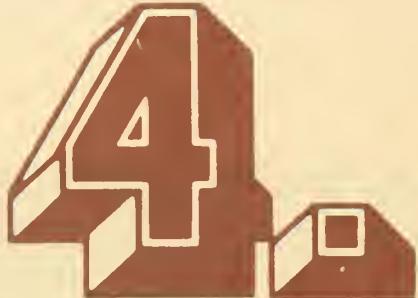


Fig. 9—Soybeans with crotalaria seed.



Fig. 10—Garlicky soybeans.



## RECOGNIZE Grading Factors:

The grading process is complicated and involves many procedures. Knowing these will help you when you develop your overall marketing plan. Remember, to get that top dollar for your soybeans, you should know how your product will be graded.

Grain inspectors are licensed through the U.S. Department of Agriculture and authorized to officially inspect and grade soybeans. They are employed by an official inspection agency and are not USDA employees. The minimum fee is about \$2.00 to \$7.00 per inspection.

### CLASSES OF SOYBEANS:

Soybeans are divided into five classes: yellow, green, brown, black, and mixed.

- *Yellow Soybeans* have yellow or green seed coats, and in cross section are yellow or have a yellow tinge. They may include not more than 10 percent of soybeans of other classes.
- *Green Soybeans* have green seed coats, and in cross section are green, and may include not more than 10 percent of soybeans of other classes.
- *Black Soybeans* have black seed coats, and may include not more than 10 percent of soybeans of other classes.
- *Brown Soybeans* have brown seed coats, and may include not more than 10 percent of soybeans of other classes.
- *Mixed Soybeans* are soybeans with bicolored seed coats, or any mixture which does not meet the requirements of the above four classes. Bicolored seed coats have two colors, one of which is black or brown, when the black or brown color covers 50 percent or more of the seed coat. The hilum of a soybean is not considered a part of the seed coat.

## EQUIPMENT FOR SAMPLING AND GRADING:

To grade soybeans, the following equipment is necessary:

- Approved moisture meter
- Boerner sampler (divider)
- Test-weight-per-bushel apparatus
- Torsion balance scale
- Approved-type grain probe
- Proper sieves with bottom pans:  
8/64-inch round hole sieve and  
10/64 x 3/4-inch slotted sieve
- Optional equipment: thermometers, sample cans.

## GRADING PROCEDURE:

*Step 1*—Obtain a representative sample of the lot to be graded. Proper sampling is essential.

To obtain a proper sample, the grader must:

- Have an approved-type grain probe long enough to reach all the soybeans. (Fig. 1)
- Take a sufficient number of probes to insure a representative sample. The sample should be about two quarts.
- Examine each probe carefully for signs of heating or hot soybeans, foreign material, or anything else unusual.
- Examine for live weevils and other live insects.
- Be careful not to expose sample to sunlight and wind before placing in a moisture-proof container. Moisture and odors are affected and diminish rapidly in wind and hot sunlight.

*Step 2*—Using a Boerner sampler or divider, divide sample into representative portions for the different tests required. (Fig. 2) One portion is needed for:

- Determining moisture
- Determining test weight per bushel
- Determining damage
- Sieving for foreign material and splits.

*Step 3*—Check the sample for musty, sour, heating, or commercially objectionable odors. To do this, the grader smells the sample.

*Step 4*—Determine the moisture content.

The grader uses a moisture machine. (Fig. 3) He must be careful not to overlook temperature adjustment since this often makes considerable difference in the moisture percentage.

*Step 5*—Find the test weight per bushel of a sample of soybeans using the test-weight-per-bushel-apparatus. (Fig. 4) An official grader test weighing a sample of soybeans:

- Uses enough soybeans to cause overflow on all sides of the kettle.
- Fills and strokes the kettle without jarring the apparatus, which causes packing of the soybeans.
- Strokes off excess soybeans with three full-length zig-zag motions of the stroker held lightly with its sides vertical.

These are prescribed steps the grader must always follow.

*Step 6*—Determine amount of foreign material. (Fig. 5) This is all matter, including soybeans and pieces of soybeans, that will pass readily through an 8/64-inch sieve, and all matter other than soybeans remaining on the sieve after sieving.

*Step 7*—Determine the percentage of splits. Splits are soybean pieces that are not damaged. (Fig. 6) A soybean with more than one-fourth broken off is a split. A hand sieve with slotted perforations 10/64 by 3/4-inch helps in determining the percentage of splits, although some hand picking will still be necessary. (Fig. 7)

*Step 8*—Observe the proportion of soybeans and pieces of soybeans that are sprouted, frosted, heat-damaged, badly ground-damaged, stinkbug-stung, moldy, diseased, or otherwise materially damaged.

*Step 9*—Determine amount of heat-damaged kernels—soybeans or pieces which are materially discolored and damaged by heat.

*Step 10*—Determine amount of stones and other concreted, earthy, or mineral matter and hard substances that do not disintegrate readily in water.

*Step 11*—Note the appearance of the sample as a whole. Look for:

- Purple mottled or stained soybeans

which are discolored by the growth of a fungus.

- Dirt, or dirty-like substances, including non-toxic inoculants.
- Other non-toxic substances.

Soybeans with any of these characteristics cannot be graded higher than U.S. Number 3.

*Step 12*—Determine damage resulting from weather exposure, such as prolonged rains or snow. The soybeans may become badly discolored, rough, or severely cracked. Soybeans that are materially weathered may not be graded higher than U.S. Number 4. (Fig. 8)

*Step 13*—Check for soybeans that contain more than two *crotalaria* seed in 1,000 grams (about 2 pounds, 3 ounces). (Fig. 9) These are "distinctly low quality" and are graded Sample Grade. All *crotalaria* plants should be removed from bean fields before harvest.

#### SPECIAL GRADES FOR SOYBEANS:

- *Garlicky soybeans* contain five or more garlic bubbles in 1,000 grams. (Fig. 10)
- *Weevily soybeans* are infested with live weevils or other insects injurious to stored grain.

#### WHAT TO DO TO PREVENT SEVERE DISCOUNTS:

Know these important factors for grading:

- *Moisture*: Soybeans should be dried to safe storage levels. Optimum moisture levels for harvesting are 13 to 15 percent.
- *Damage*: Watch for heat-damage, sprouts, frost, or weather-damage, mold, disease, stinkbug-stung beans.
- *Foreign material*: Avoid soybeans or pieces of soybeans which will pass readily through an 8/64-inch sieve and all matter other than soybeans remaining on the sieve after sieving.

#### OFFICIAL GRAIN STANDARDS ACT OF THE UNITED STATES:

You should become familiar with the *Official Grain Standards of the United States*, revised February 1970. A copy can be obtained from the Grain Division, Agricultural Marketing Service, U.S. Department of Agriculture, Washington, D.C. 20250.

Table 1. Grades and Grade Requirements for Soybeans, Official Grain Standards of the United States.

Minimum Grade test weight per bushel	Moisture	Splits	Maximum limits of—		
			Damaged Kernels		Foreign Material
			Total	Heat	
1	56	13.0	10	2.0	0.2
2	54	14.0	20	3.0	0.5
3 <sup>1</sup>	52	16.0	30	5.0	1.0
4 <sup>2</sup>	49	18.0	40	8.0	3.0

Pounds	Percent	Percent	Percent	Percent	Percent
1	56	13.0	10	2.0	0.2
2	54	14.0	20	3.0	0.5
3 <sup>1</sup>	52	16.0	30	5.0	1.0
4 <sup>2</sup>	49	18.0	40	8.0	3.0

*Sample Grade:* "Sample grade" are soybeans that do not meet the requirements for any of the grades from No. 1 to No. 4, inclusive; or are musty, sour or heating; or have any commercially objectionable foreign odor; or contain stones; or are otherwise of distinctly low quality.

<sup>1</sup> Soybeans which are purple mottled or stained shall be graded not higher than No. 3.

<sup>2</sup> Soybeans which are materially weathered shall be graded not higher than No. 4.

**Cooperative Extension Work: United States Department of Agriculture  
and State Land-Grant Universities Cooperating.**

**REMEMBER! To sell your soybeans for top dollars—**

- 1. Plan your production and marketing programs at the same time.**
- 2. Harvest high-quality soybeans.**
- 3. Market alternatives—know and use them.**
- 4. Look for grade factors that determine the quality of your soybeans.**



This leaflet is one in a series on facts and issues concerning the soybean industry. It is prepared and distributed under the auspices of the Soybean Industry Resource Committee, comprised of State and Federal research and Extension personnel, and representatives of the Foreign Agricultural Service and Farmer Cooperative Service, in consultation with the soybean industry.